

**THE STUDY OF CHINESE TRADE CERAMICS  
IN SUNGAI SADONG, SARAWAK**

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**THE STUDY OF CHINESE TRADE CERAMICS  
IN SUNGAI SADONG, SARAWAK**

**by**

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## TABLE OF CONTENTS

	page
Acknowledgements	ii
Table of Contents	iv
List of Tables	xii
List of Figures	xiii
List of Plates	xiv
List of Publication and Conference Papers	xxxiv
Abstract	xxxv
Abstrak	xxxvii
 CHAPTER 1 - INTRODUCTION	
1.1 Introduction	1
1.1.1 Definitions of Chinese Ceramics	1
1.1.2 General Statement of Ceramics	5
1.1.2.1 Trade ceramic	5
1.1.2.2 Tri-coloured glazed wares (三彩瓷)	7
1.1.2.3 Celadon (青瓷)	8
1.1.2.4 White wares (白瓷)	10
1.1.2.5 Qingbai wares (青白瓷)	12
1.1.2.6 Black glazed wares (黑釉瓷) or Temmoku (天目瓷)	13
1.1.2.7 Blue-and-white porcelain (青花瓷)	15
1.2 Statement of Problems	17
1.2.1 Classification of the trade ceramics	18
1.2.2 The origin of trade ceramics	19
1.2.3 The dating of trade ceramics	22
1.3 Objectives of Present Study	23
1.4 Research Area and Scope	24
1.4.1 Overview of the research area	24
1.4.2 Previous surveys and excavations	26
1.4.3 Scope of present study	28

1.4.4 The selected archaeological sites	31
1.4.4.1 Gedong	31
1.4.4.2 Benat Hilir	33
1.4.4.3 Senangeh	34
1.5 Methodology	36
1.5.1 Morphological Analysis	36
1.5.2 Scientific Analysis	39
1.5.3 Comparative Study	40
1.6 Summary	42
 CHAPTER 2 - CHINESE TRADE CERAMICS IN SOUTHEAST ASIA	
2.1 Introduction	45
2.2 Maritime Silk Road and Chinese ceramics exportation	46
2.2.1 The emergence of Maritime Silk Road	47
2.2.2 Phases of prosperity in the Chinese trade ceramics exportation	48
2.2.2.1 Sui to Tang Dynasties (6 <sup>th</sup> to early 10 <sup>th</sup> Century CE)	48
2.2.2.2 Song to Yuan Dynasties	
(10 <sup>th</sup> to middle of 14 <sup>th</sup> Century CE)	49
2.2.2.3 Ming to Qing Dynasties	
(middle of 14 <sup>th</sup> to early 20 <sup>th</sup> Century CE)	51
2.2.3 Some evidences of maritime trade and their relation to	
the research area	52
2.2.3.1 Belitung shipwreck	52
2.2.3.2 The Nanhai 1 (南海 1 号) shipwreck	53
2.2.3.3 The Huaguangjiao 1 (华光礁 1 号) shipwreck	54
2.2.3.4 The Pulau Buaya wreck	55
2.2.3.5 The Java Sea wreck	56
2.2.3.6 Historical documents of the Song and Yuan Dynasties	57
2.2.3.7 Trade centre of Southeast Asia region	57
2.3 General Survey of Trade Ceramics found and Studies done in Southeast Asia	59
2.3.1 Vietnam	61
2.3.1.1 Ceramic industry of ancient Vietnam	62
2.3.1.2 Ceramic products of Vietnamese style	63
2.3.1.3 Vietnamese trade ceramics	64

2.3.1.4 The discoveries of Vietnamese ceramics	66
2.3.2 Thailand	67
2.3.2.1 The kingdoms of Mon and Khmer	68
2.3.2.2 Sukhothai and Sawankhalok kilns of the Sukhothai Kingdom	69
2.3.3 Cambodia	73
2.3.3.1 The ceramic tradition	74
2.3.3.2 Foreign influences on the Cambodian ceramic tradition	76
2.3.4 Burma (Myanmar)	78
2.3.4.1 Burmese ceramic tradition	78
2.3.4.2 The assemblage of Burmese ceramics	79
2.3.4.3 Involvement of Burma in the maritime trade	80
2.3.5 Philippines	82
2.3.5.1 The assemblage of ceramics in the Philippines	83
2.3.5.2 The importance of Chinese trade ceramics to the Philippines	84
2.3.6 Indonesia	85
2.3.6.1 The assemblage of ceramics in Indonesia	86
2.3.7 Malaysia	89
2.3.7.1 The ceramic tradition and trade ceramics found in Malaysia	90
2.3.7.2 The ports of Kedah, Santubong and Malacca	92
2.3.8 Brunei Darussalam	95
2.3.9 Singapore	97
2.3.10 Laos	99
2.4 Summary	101

## CHAPTER 3 - MORPHOLOGICAL ANALYSIS

3.1 Introduction	107
3.2 Typological analysis – Glaze colours	108
3.2.1 Celadon	110
3.2.1.1 Pure green	110
3.2.1.2 Green-greyish	111
3.2.1.3 Green-yellowish	112
3.2.1.4 Green-blackish	113

3.2.1.5	Light greenish-blue	114
3.2.1.6	Olive-green	114
3.2.1.7	Bright greenish	115
3.2.1.8	Non-uniform colour (generally mixed with yellowish and greyish tinge)	116
3.2.2	White ware	117
3.2.2.1	White-yellowish (creamy) colour	118
3.2.3	Qingbai ware	119
3.2.4	Black-glazed ware (Temmoku)	120
3.2.5	Brown-yellowish or yellowish glazed ware	121
3.2.6	Brown-reddish glazed ware	122
3.3	Typological analysis – Type and Function	123
3.3.1	Bowl	125
3.3.1.1	Deep bowl (深腹碗)	126
3.3.1.2	Shallow bowl	127
3.3.1.3	Bowl with unglazed lip (芒口碗)	128
3.3.1.4	Conical-shaped bowl (笠式碗)	129
3.3.1.5	Bowl with notched rim (葵口碗)	130
3.3.1.6	Bowls with stylized floral scrolls	131
3.3.1.7	High-footed bowl (高足碗)	132
3.3.1.8	Square bowl with notched rim	133
3.3.1.9	Rounded bowl with narrow mouth (束口碗)	134
3.3.2	Jar	135
3.3.2.1	Jar with handle	137
3.3.2.2	Jar without handle	141
3.3.3	Dish (洗)	143
3.3.3.1	Dish with flattened rim (折沿洗)	144
3.3.3.2	Dish without flattened rim	145
3.3.4	Tea bowl	146
3.3.5	Kendi	147
3.3.5.1	Kendi with a down-turned mouth rim	149
3.3.5.2	Kendi with a narrow neck flaring outwards to the mouth	150
3.3.5.3	Kendi with a wide tube-like neck	151



3.3.5.4 Coarse-made kendi	152
3.3.6 Ewer	153
3.3.6.1 Ewer with a vase-shaped body	155
3.3.6.2 Ewer with a plate-like mouth	157
3.3.6.3 Ewer with erected mouth	158
3.3.6.4 Octagonal shaped ewer	159
3.3.6.5 Melon-shaped ewer (瓜棱)	160
3.3.6.6 Water drop-shaped ewer	161
3.3.7 Plate	162
3.3.7.1 Round plate	163
3.3.7.2 Round plate with notched mouth rim (葵口盘)	164
3.3.7.3 Floral-shaped plate	165
3.3.8 Saucer	166
3.3.8.1 Lotus-shaped saucer	166
3.3.8.2 Round and flat-bottomed saucer	167
3.3.9 Jarlet	168
3.3.9.1 Globular-shaped jarlet	169
3.3.9.2 Ovoid-shaped jarlet	171
3.3.10 Storage vessel	171
3.3.10.1 Tall storage bottle	172
3.3.10.2 Squat storage jug	173
3.3.11 Covered box	174
3.3.11.1 Polygonal-shaped covered box	176
3.3.11.2 Melon or fruit-shaped covered box	176
3.3.11.3 Rounded covered box	177
3.3.12 Vase	178
3.3.12.1 Large vase	178
3.3.12.2 Small vase	181
3.3.13 Basin	183
3.3.14 Small cup (盏 <i>Zhan</i> )	184
3.3.15 Spittoon (痰盂 or 渣斗)	185
3.4 Typological Analysis – Decorations	186
3.4.1 Animal motifs	187

3.4.1.1 Dragon ( <i>Long</i> 龍) motif	188
3.4.1.2 Fish design	190
3.4.1.3 Phoenix ( <i>Feng Huang</i> 鳳凰) motif	191
3.4.1.4 Tortoise design	192
3.4.2 Floral motifs	193
3.4.2.1 Lotus flower design	194
3.4.2.2 Lotus petal design	195
3.4.2.3 Chrysanthemum design	197
3.4.2.4 Banana leaves design	198
3.4.2.5 Carved or incised floral design	199
3.4.3 Other motifs	200
3.4.3.1 Ice cracks pattern	201
3.4.3.2 Combed lines design	201
3.4.3.3 Wave pattern	202
3.4.3.4 Cloud pattern	203
3.4.3.5 <i>Lei</i> motif (雷纹, thunder motif)	204
3.4.3.6 Geometric pattern	205
3.4.3.7 Ridged-scrolls pattern	206
3.4.3.8 Nipple pattern or dots pattern	208
3.4.3.9 Button-liked decoration	209
3.4.3.10 Throwing marks	210
3.5 Ceramics with Chinese inscriptions	210
3.5.1 Identifiable pieces	212
3.5.1.1 Inscriptions to express good wishes	212
3.5.1.2 Inscriptions which probably refer to the name of the owners or the kilns	217
3.5.2 Partially identifiable pieces	231
3.5.3 Unidentifiable pieces	233
3.5.3.1 Partially damaged pieces	234
3.5.3.2 Unidentifiable pieces because of illegible handwriting	235
3.6 Summary	237

## CHAPTER 4 - SCIENTIFIC ANALYSIS

4.1 Introduction	242
4.2 Preparation of samples	242
4.3 Structures of the clay and glaze	248
4.4 Microstructure of the glaze layer	253
4.5 Scanning Electron Microscope (SEM) analysis	258
4.5.1 Celadon ware	259
4.5.2 White ware	262
4.5.3 Qingbai ware	264
4.5.4 Black-glazed ware	265
4.6 Summary	267

## CHAPTER 5 – PROVENANCE AND DATING OF THE SADONG CERAMICS

5.1 Introduction	270
5.2 Origin of the Chinese Trade Ceramics	271
5.2.1 Ceramic products of the Longquan kiln in Zhejiang Province	272
5.2.2 Ceramic products of Dehua kiln in Fujian Province	290
5.2.3 Ceramic products of Jingdezhen kiln in Jiangxi Province	301
5.2.4 Ceramic products of Cizao kiln in Fujian Province	308
5.2.5 Ceramics from other places or kiln sites in China	320
5.2.5.1 Fujian Province	320
5.2.5.2 Guangdong Province	330
5.2.6 Unidentifiable pieces	334
5.3 Date of Production	335
5.3.1 Chinese trade ceramics dated to the Song Dynasty (960 – 1279 CE)	337
5.3.2 Chinese trade ceramics dated to the Yuan Dynasty (1206 – 1368 CE)	338
5.3.3 Chinese trade ceramics dated to the Song-Yuan periods	338
5.4 Summary	340

## CHAPTER 6 - SUMMARY AND CONCLUSIONS

6.1 Introduction	345
6.2 Classification and identification of the Chinese trade ceramics	345
6.3 The used of Chinese trade ceramics in the research area	348

6.4 Scientific tests of the ceramics	350
6.5 Conclusions	351
6.5.1 The assemblage of Chinese trade ceramics	351
6.5.1.1 The Chinese inscriptions	356
6.5.2 The origin of Chinese trade ceramics from Sungai Sadong	357
6.5.3 Dating of the Chinese trade ceramics	362
6.5.4 Relationship between Sungai Sadong, Santubong and Sungai Limau Manis	363
6.5.5 Attributes and relationship between Gedong, Benat Hilir and Senangeh	365
6.5.6 Ownership of the Chinese trade ceramics from Sungai Sadong	369
6.6 Future study	370
REFERENCES	372
GLOSSARY	385
APPENDICES	
Appendix A: Scanning Electron Microscope (SEM) spectrums of selected samples from Sungai Sadong	388

## LIST OF TABLES

Table	page
3.1 Quantities of intact ceramics excavated from the site at Gedong.	124
3.2 Quantities of intact ceramics discovered from the site at Benat Hilir.	124
3.3 Quantities of ceramic types from the site at Senangeh.	125
3.4. Chinese trade ceramics found with Chinese inscriptions.	212
4.1 Celadon samples for scientific analysis.	243
4.2 White ware samples for scientific analysis.	245
4.3 Qingbai ware samples for scientific analysis.	246
4.4 Black-glazed ware sample for scientific analysis.	247
4.5 Chemical component of glaze covered on celadon ware.	261
4.6 Chemical component of clay in the selected samples of celadon ware.	262
4.7 Chemical component of glaze covered on the selected white ware samples.	263
4.8 Chemical component of the clay used to make white ware.	263
4.9 Chemical component of glaze covered on Qingbai ware.	265
4.10 Chemical component of clay used to make Qingbai ware.	265
4.11 Chemical component of clay and glaze of black-glazed ware.	266

## LIST OF FIGURES

Figure		page
1.1	Map showing the location of the three selected sites along Sungai Sadong.	30
2.1	Several possible maritime trade routes from China to the India and the West.	58
2.2	Some important archaeological sites and shipwrecks in Southeast Asia.	60
5.1	Location of kiln sites in southern China.	271

## LIST OF PLATES

Plate		page
1.1 & 1.2	Condition of the site in Gedong during the 1960s (left) and archaeological excavation in the 1960s (right).	33
1.3	Archaeological excavation of the site at Benat Hilir in 2002.	34
1.4 & 1.5	Sarawak Museum Department staff measuring the site at Senangeh in 1996 (left) and current condition of the site in Senangeh (right).	35
1.6	Stereo microscope (model: Leica MZ16) at the Centre for Global Archaeological Research, Universiti Sains Malaysia.	40
1.7	Scanning Electron Microscope (SEM, model: FEI Quanta FEG 650) at the Centre for Global Archaeological Research, Universiti Sains Malaysia.	40
2.1	Several examples of Vietnamese ceramics found in Sarawak.	65
2.2	A storage jar originated from Cizhou kiln and two fragments of Sukhothai wares found in Sarawak.	70
2.3	Several types of Sawankhalok wares discovered in Sarawak.	72
2.4	Three “Martaban jar” probably originated from Burma or Kalong that found in Sarawak.	79
3.1	A large celadon plate coated with a glaze in pure green colour from Senangeh.	111
3.2 & 3.3	Two examples of green-greyish celadon ware from Benat Hilir.	112
3.4 & 3.5	Two examples of celadon ware in green-yellowish from Benat Hilir.	113
3.6	A storage jug coated to a glaze in green-blackish from Benat Hilir.	113

3.7 & 3.8	A celadon dish in light greenish-blue (left) from Senangeh and a celadon bowl in light greenish-blue (right) from Benat Hilir.	114
3.9 & 3.10	A celadon dish (left) and a celadon small cup (right) with the glaze in olive-green from Benat Hilir.	115
3.11	Two examples of celadon ware in bright greenish from Benat Hilir.	116
3.12 & 3.13	A celadon dish in half greyish and half yellowish (left) and a green-yellowish celadon bowl mixed with greyish on the surface (right) from Benat Hilir.	117
3.14	Two examples of ceramics covered by transparent glaze and appeared in white colour from Benat Hilir.	118
3.15	A creamy white ware bowl with unglazed lip and foliate motif carved on the exterior.	118
3.16 & 3.17	Two examples of Qingbai ware (left – ewer; right – bowl) of high quality from Benat Hilir.	119
3.18 & 3.19	A black-glazed tea bowl (left) and three half-glazed storage jugs in black colour (right) from Benat Hilir and Senangeh.	121
3.20	Two examples of brown-yellowish or yellowish glazed ware from Benat Hilir.	122
3.21	A dish (left) and a jarlet (right) coated to the glaze in brown-reddish colour from Benat Hilir.	123
3.22 & 3.23	Two celadon bowls with a deep belly and carved with lotus motif on the interior wall found in Benat Hilir.	127
3.24 & 3.25	A rounded celadon bowl carved with “double S” shaped cloud motif on the interior (left) and a plain celadon deep bowl (right) from Benat Hilir.	127
3.26 & 3.27	A white ware deep bowl with unglazed lip (left) and a Qingbai deep bowl with unglazed lip (right) from Benat Hilir.	127



3.28 & 3.29	A shallow celadon bowl decorated with lotus petal design on the exterior (left) and a shallow celadon bowl with simplified lotus petal design (right) from Benat Hilir.	128
3.30 & 3.31	Two white ware bowls with unglazed lip and foliaceous design decorated on the external wall from Benat Hilir.	129
3.32 & 3.33	A Qingbai-greyish conical bowl (left) and an irregularly made Qingbai-greyish conical bowl (right) from Benat Hilir.	130
3.34	A half-glazed conical-shaped bowl from the site at Benat Hilir.	130
3.35 & 3.36	A rounded bowl with five notches on the mouth rim (left) and two bowls with several notches at the mouth rim (right) from Benat Hilir.	131
3.37 & 3.38	Qingbai bowls with stylized floral scrolls found in Benat Hilir.	132
3.39	The only example of high-footed bowl found in Benat Hilir.	133
3.40	A Qingbai square bowl with notched rim and floral design in relief on the interior wall from Benat Hilir.	134
3.41	Celadon bowl in circular form with a narrow mouth from Senangeh.	134
3.42	A simple classification of storage jar based on their size and height.	136
3.43	The glazes in different tinge found on the storage jars.	137
3.44 & 3.45	The loop handles pasted in horizontal order (left) and those pasted in vertical order (right) on the shoulder of the storage jar from Benat Hilir.	138
3.46	Three different types of storage jars with handles from Benat Hilir.	140
3.47 & 3.48	Four-handle jars made to different shapes from Benat Hilir.	141
3.49 & 3.50	A three-handle jar (left) and a five-handle jar (right) from Benat Hilir.	141

3.51 & 3.52	A reconstructed five-handle jar decorated with double dragon motif (left) and a plain six-handle jar (right) from Benat Hilir.	141
3.53 & 3.54	Three small jars without handle with green-yellowish glaze (left) and a green-yellowish glazed storage jar decorated with six vertical concave ridges (right) from Benat Hilir.	142
3.55 & 3.56	Two small and neckless storage jars with a slightly concave mouth from Benat Hilir.	142
3.57 & 3.58	A plain celadon dish with flattened rim in a non-uniform colour from Benat Hilir (left) and a flattened-rim celadon dish with twin-fish design and lotus petal design (right) from Senangeh.	145
3.59 & 3.60	Several examples of celadon dishes without flattened rim from Benat Hilir.	146
3.61 & 3.62	The black-glazed tea bowls from Benat Hilir.	147
3.63	Two tea bowls from Benat Hilir.	147
3.64	The glaze colours of Kendis found in Benat Hilir.	148
3.65 & 3.66	The button-shaped decoration commonly pasted at the part above the spout and the evidence of the spout pasted to the body of the kendi (left) and a lead-glazed kendi with double dragon carved in relief on the shoulder and lotus petal design on the lower exterior wall (right) from Benat Hilir.	149
3.67	Four kendis with a down-turned mouth rim from Benat Hilir.	150
3.68	Kendis with a narrow neck connected with flat and thickened mouth rim from Benat Hilir.	151
3.69	Two kendis with a wide neck connected to a flat and thickened mouth rim from Benat Hilir.	152
3.70	Four kendis made up of coarse materials from Benat Hilir.	153
3.71	Different types of ewers from Benat Hilir and Gedong.	154
3.72	The lids of ewer found in the Benat Hilir site.	155

3.73 & 3.74	Three ewers with a vase-shaped body (left) from Benat Hilir and two coarse-made ewers made to squat vase-liked form (right) from Senangeh.	156
3.75 & 3.76	A white ware ewer with erected mouth (left) and a Qingbai ware ewer with erected mouth (right) from Benat Hilir.	157
3.77 & 3.78	Two partly damaged ewers with a plate-like mouth (left) and an ewer with a plate-like mouth (right) from Benat Hilir.	158
3.79	A Qingbai ewer with erected mouth from Benat Hilir.	159
3.80	The only example of octagonal shaped ewer found in Benat Hilir site.	160
3.81 & 3.82	Two celadon melon-shaped ewers (left) and a Qingbai ewer with ridged-scrolls carved on the exterior surface and decorated with incised floral pattern (right) from Benat Hilir.	161
3.83	A dragon ewer from Gedong.	162
3.84 & 3.85	An exquisite celadon plate (left) and a green-greyish celadon plate (right) from Senangeh.	163
3.86 & 3.87	A celadon plate with lotus carving on the interior (left) and a white ware plate with incised floral motif (right) from Benat Hilir.	164
3.88	An example of Qingbai-greyish plate with six notches at the mouth rim from Benat Hilir.	164
3.89 & 3.90	Two Qingbai floral-shaped plates from Benat Hilir.	165
3.91 & 3.92	A white ware floral-shaped plate (left) and a Qingbai floral-shaped plate (right) from Benat Hilir.	165
3.93 & 3.94	Two lead-glazed lotus-shaped saucers in light greenish tinge with a flat bottom discovered at Benat Hilir.	167
3.95 & 3.96	A rounded flat-bottomed plate decorated with geometry motif (left) from Benat Hilir and a plain half-glazed flat-bottomed saucer (right) from Senangeh.	168

3.97 & 3.98	A Qingbai-greyish flat-bottomed plate probably decorated with incised floral motif (left) and a plain flat-bottomed plate (right) from Benat Hilir.	168
3.99	Various types of jarlets discovered at Benat Hilir site.	169
3.100 & 3.101	Three jarlets carved with “double dragon chasing a pearl” motif in relief (left) and two jarlets pasted with two lugs or ears on the neck (right) from Benat Hilir and Senangeh.	170
3.102	A Qingbai jarlet from Benat Hilir which decorated with lotus petal design on the shoulder, <i>Lei</i> motif (thunder motif) rounded the middle and the lower part of the exterior surface with vertical scrolls carved between the <i>Lei</i> motif.	170
3.103	Two jarlets made to ovoid shape from Benat Hilir.	171
3.104	Several examples of the storage vessels in different sizes and shapes discovered from Benat Hilir.	172
3.105 & 3.106	Several storage bottles (left) and two storage bottles with a wide mouth and thickened mouth rim (right) from Benat Hilir.	173
3.107 & 3.108	A squat jug-liked storage vessel (left) coated with a glaze in black colour and a squat jug-liked lead-glazed storage vessel (right) from Benat Hilir site.	174
3.109	A storage jug coated to black glaze on half of the body found in Benat Hilir.	174
3.110	A white ware octagonal-shaped covered box from Benat Hilir.	176
3.111	An intact Qingbai melon-shaped covered box from Benat Hilir.	177
3.112 & 3.113	The lower portion of two Qingbai melon-shaped covered boxes found in Benat Hilir.	177
3.114 & 3.115	A rounded white ware covered box with incised floral design (left) and a small Qingbai ware covered box in round shape (right) from Benat Hilir.	178
3.116	Different types of large vases from Benat Hilir	180

3.117 & 3.118	A lead-glazed vase with floral-shaped mouth and incised floral design on the body (left) and a vase pasted with dragon motif on the shoulder (right) from Benat Hilir.	181
3.119 & 3.120	Small vases of white ware and Qingbai ware from Benat Hilir.	182
3.121 & 3.122	A small celadon vase with incised floral design on the body (left) and a small Qingbai vase with plate-liked mouth (right) from Benat Hilir.	182
3.123 & 3.124	A basin with stamped fish design (left) and a basin painted with floral motif (right) from Benat Hilir.	184
3.125 & 3.126	Small cups found from the site at Benat Hilir.	185
3.127	The only example of spittoon identified from Benat Hilir.	186
3.128 & 3.129	A five-handle jar carved with double dragon motif in high relief (left) from Benat Hilir and a jarlet carved with “double dragon chasing a pearl” motif on the shoulder (right) from Senangeh.	188
3.130 & 3.131	A semi-complete kendi carved with double dragon motif in Relief (right) from Benat Hilir and the celadon plate with flying dragon and pearl motif on the center of the inner base (right) found in Senangeh.	189
3.132 & 3.133	Dragon motif found on the shoulder of a storage jar (left) and the kendi pasted with a spout made in the shape of a dragon’s head that similar to the kendi from the collection of University of Malaya.	190
3.134 & 3.135	A semi-complete celadon dish from Benat Hilir (left) and a light greenish celadon dish with twin-fish design on the center of the interior base from Senangeh (right).	191
3.136 & 3.137	A shallow Qingbai bowl with sketchy twin-fish design on the center of the interior bottom (left) and 5 twin-fish medallions stamped on a basin (right) from Benat Hilir.	191
3.138	The lead-glazed saucer with phoenix motif on the centre of the Inner base from Benat Hilir.	192
3.139	The Qingbai ewer pasted with a pair of tortoise on the shoulder found in Benat Hilir.	193

3.140 & 3.141	The lotus flower design carved on the interior wall of a green-greyish celadon bowl (left) and simplified lotus motif found on a green-greyish celadon bowl (right) from Benat Hilir.	195
3.142 & 3.143	Lotus motif associated with the Chinese word “吉” (left) and lotus motif found on the celadon plate (right) from Benat Hilir.	195
3.144 & 3.145	Double-layer lotus petal design on a celadon bowl (left) and a green-yellowish celadon bowl with lotus petal design (right) from Benat Hilir.	196
3.146 & 3.147	Various types of lotus petal carved onto the celadon bowls found in Benat Hilir.	196
3.148 & 3.149	Lotus petal design found on the shoulder of a Qingbai jarlet (left) And on the body of a Qingbai small vase (right) from Benat Hilir.	197
3.150 & 3.151	The chrysanthemum motif decorated on the lid of a covered box (left) and found on the base of a celadon bowl (right) from Benat Hilir.	198
3.152 & 3.153	Banana leaf design carved on the neck of a Qingbai ewer (left) and found on the inner wall of a celadon bowl (right) from Benat Hilir.	199
3.154 & 3.155	Incised floral design decorated on a lead-glazed saucer (left) and a lead-glazed vase (right) from Benat Hilir	199
3.156 & 3.157	Two white ware small vases decorated with incised floral design (left) and incised floral design found on the lid of a covered box (right) from Benat Hilir.	200
3.158 & 3.159	A green-greyish celadon bowl with simplified incised-floral design (left) and a Qingbai ewer with incised-floral design (right) from Benat Hilir.	200
3.160 & 3.161	Two celadon jarlets with ice cracks pattern from Senangeh (left) and ice cracks pattern found on a celadon dish (right) from Benat Hilir.	201
3.162 & 3.163	Combed-lines design found on a celadon bowl (left) and lotus petal with combed-lines design on a celadon bowl (right) from Benat Hilir.	202

3.164 & 3.165	Wave pattern carved on two Qingbai-greyish bowls from Benat Hilir.	203
3.166 & 3.167	Wave pattern rounded the interior wall of the plate from Senangeh (left) and wave pattern surrounded the phoenix motif on a saucer from Benat Hilir (right).	203
3.168 & 3.169	Two celadon bowls with double “S” shaped cloud design incised on the inner wall from Benat Hilir.	204
3.170	The Qingbai jarlet carved with <i>Lei</i> motif found in Benat Hilir.	205
3.171 & 3.172	A globular-shaped vase (left) and an ovoid shaped vase (right) with geometrical painting on the exterior wall from Benat Hilir.	206
3.173	A celadon bowl with geometry design carved on the interior surface from Benat Hilir.	206
3.174 & 3.175	Ceramics decorated with ridged-scrolls pattern including ewer, jarlet, covered box, jar, dish and small vase discovered from Benat Hilir.	207
3.176	The four-handle jar made to a melon-shaped using 8 concave scrolls placed in vertical order from Benat Hilir.	208
3.177 & 3.178	A Qingbai jar decorated with nipple pattern (left) and a white ware ewer with nipple pattern rounded the shoulder (right) from Benat Hilir.	208
3.179	The lid of a covered box with nipple pattern round the edge from Benat Hilir.	209
3.180	Button-liked decoration pasted on kendis from Benat Hilir.	209
3.181	Several types of ceramics found with throwing marks on the exterior surface from Benat Hilir.	210
3.182 & 3.183	The inscription “金玉满堂” stamped on the interior base of BS 336-02 (left) and BS 488-02 (right) from Benat Hilir.	214
3.184 & 3.185	Two celadon bowls (left: BS 541-02; right: BS 771-02) stamped with “金玉满堂” on the interior base of these two bowls from Benat Hilir.	214

3.186	The inscription “金玉满堂” stamped on the interior base of a celadon bowl in green-yellowish colour (BS 606-02) from Benat Hilir.	214
3.187	The green-greyish conical bowl (BS 142-02) carved with the combination of “吉” and lotus flower motif from Benat Hilir.	216
3.188 & 3.189	“吉” carved on the shoulder of BS 340-02 (left) and “吉” incised on the interior surface of BS 533-02 (right) from Benat Hilir.	216
3.190	The exterior bottom of Qingbai covered box (BS 79-02) carved with “程家合子記” in vertical order from Benat Hilir.	218
3.191 & 3.192	“林豆” written on the exterior bottom of BS 761-02 (left) and “林部?” written on the exterior bottom of BS 17-02 (right) from Benat Hilir.	219
3.193	“林五?” written on the exterior bottom of BS 347-02 from Benat Hilir.	219
3.194 & 3.195	The inscriptions started with “林” written on the exterior base of BS 256-02 (left) and BS 680-02 (right) from Benat Hilir.	219
3.196 & 3.197	“黃火長?” written on the exterior base of BS 343-02 and the inscription started with “黃” found on the exterior bottom of BS 368-02 from Benat Hilir.	220
3.198	“吳或” carved on the exterior base of a covered box from Benat Hilir.	221
3.199	Collation pictures showing the outline of the inscription written on the four-handle jar found in Benat Hilir.	221
3.200	The four-handle jar written with Chinese words “秦立” in black ink on the exterior bottom from Benat Hilir.	222
3.201	The inscription “司長” found on a four-handle jar from Benat Hilir.	223
3.202	“葉碇” written on the exterior bottom of the spittoon found in Benat Hilir.	223



3.203	A four-handle jar written with Chinese words on the exterior bottom and a Chinese word incised on each side of the shoulder from Benat Hilir.	224
3.204	The inscription started with “王” found on the exterior base of the three handle jar from Benat Hilir.	225
3.205	A Qingbai covered box written with a Chinese character in black colour on the exterior base from Benat Hilir.	225
3.206	The celadon bowl written with “金” on its exterior base from Benat Hilir.	226
3.207	“合” carved on the fragment of a celadon bowl from Gedong.	227
3.208	The blurry Chinese character “東” written on the exterior bottom of the four handle jar from Benat Hilir.	228
3.209	The Chinese character found on the base of a ewer from Benat Hilir.	228
3.210	A storage bottle from Benat Hilir written with two Chinese words in black colour on the outer base from Benat Hilir.	229
3.211	The large Chinese character written on the exterior bottom of a Qingbai covered box from Benat Hilir.	230
3.212 & 3.213	Two Qingbai ewers from Benat Hilir are found with the same word on their exterior base.	230
3.214	A black-glazed storage jug written with a Chinese word in black colour on the exterior bottom from Benat Hilir.	230
3.215	A reconstructed Qingbai covered box from Benat Hilir which written with four Chinese words on the exterior base.	231
3.216	The white ware small vase with Chinese inscription from Benat Hilir.	232
3.217	The incomplete character written on the bottom of the storage jar found in Benat Hilir.	232

3.218	Exterior bottom of the storage jar with incomplete character from Benat Hilir.	233
3.219	The partially identified inscription on the base of storage jar found in Benat Hilir.	234
3.220	The green-yellowish glazed five-handle jar written with at least one Chinese character from Benat Hilir.	235
3.221 & 3.222	Two storage jugs with unidentified inscription from Benat Hilir.	235
3.223 & 3.224	Two black-glazed storage jars with unidentified inscription from Benat Hilir.	236
3.225 & 3.226	A storage jug (left) and a four-handle (right) with unidentified inscription from Benat Hilir.	236
3.227 & 3.228	Two four-handle jars with unidentified inscription from Benat Hilir.	236
3.229 & 3.230	A four-handle jar (left) and a vase (right) with unidentified Chinese inscription from Benat Hilir.	237
4.1 & 4.2	Celadon samples (1 – 5) and celadon samples (6 – 9) for scientific analysis.	245
4.3	White ware samples for scientific analysis.	246
4.4	Qingbai samples chosen for scientific analysis.	247
4.5	The sample of black-glazed ware chosen for scientific analysis.	248
4.6 & 4.7	A celadon bowl (left) and a fragment of celadon ware (right) made up of thick clay and covered by a thin glaze.	249
4.8 & 4.9	A celadon sample coated with a thick glaze and a piece of celadon sample with a thin glaze layer.	250
4.10 & 4.11	Two fractures of celadon wares made up of thick clay and covered by thick glaze.	250

4.12 & 4.13	Thin and semi transparent glaze layer covered on the white ware (left) and glaze layer covered on the Qingbai jarlet (right).	251
4.14 & 4.15	Small air holes distributed on the fractured surfaces of Celadon.	252
4.16 & 4.17	Small air holes found on the fractured surfaces of the Qingbai-greyish fragments.	252
4.18 & 4.19	A cross-section of the Qingbai sample 2 (left) and celadon sample 2 (right).	252
4.20 & 4.21	The distribution of small bubbles in almost similar sizes of celadon sample 1 (left) and celadon sample 3 (right).	254
4.22 & 4.23	Glaze layer of celadon sample 7 (left) and celadon sample 6 (right) filled with small bubbles.	254
4.24 & 4.25	Glaze layer of celadon sample 5 (left) and small bubbles in the glaze layer of celadon sample 4 (right).	254
4.26 & 4.27	Images of the glaze layer coated on the white wares captured under the stereo microscope.	255
4.28 & 4.29	An image of the white ware sample 4 captured under the stereo microscope (left) and an image of the glaze on the Qingbai ware (right).	255
4.30 & 4.31	Images of the glaze layer of the opaque glaze coated on the black-glazed ware (left) and lead-glazed celadon ware in bright greenish colour (right).	256
4.32 & 4.33	High magnification images of celadon sample 1 (left) and celadon sample 3 (right) captured using the SEM.	257
4.34 & 4.35	The fracture surface of white ware sample 5 (left) and white ware sample 2 (right) which show the glaze layer and clay of the ceramic wares.	257
5.1 & 5.2	The large celadon plate from Senangeh (left) and similar examples found in Sarawak (right).	274

5.3 & 5.4	Archaeological evidence from China (left) and a reference sample from the Longquan kiln discovered in China (right).	274
5.5 & 5.6	A large celadon plate from Senangeh (left) and a reference sample similar to the celadon plate from China (right).	275
5.7 & 5.8	Two celadon bowls with lotus petal design from Benat Hilir.	276
5.9 & 5.10	Celadon bowls with lotus petal design from Benat Hilir (left) and a reference sample from China (right).	276
5.11 & 5.12	A celadon deep bowl with lotus petal motif on the exterior (left) and a celadon bowl discovered from the site of Sungai Limau Manis, Brunei Darussalam.	276
5.13 & 5.14	Reference samples discovered from sites in China.	277
5.15 & 5.16	Reference samples discovered from sites in China.	277
5.17 & 5.18	Celadon bowls with double “S” shaped cloud motif from Benat Hilir.	278
5.19 & 5.20	A celadon bowl displayed in the gallery of Maritime Silk Road Museum of Guangdong (left) and a reference sample from a site in China (right).	278
5.21 & 5.22	Celadon deep bowls with lotus carving from Benat Hilir.	279
5.23 & 5.24	A reference sample from a site in Sarawak (left) and a reference sample from the cargoes of Nanhai 1 shipwreck (right).	279
5.25 & 5.26	A celadon plate from Benat Hilir and a reference sample from China.	280
5.27 & 5.28	A broken celadon dish with twin-fish design from Benat Hilir (left) and a light greenish-blue celadon dish with twin-fish design from Senangeh (right).	281
5.29 & 5.30	A celadon dish with twin-fish design from Senangeh (left) and a celadon dish used as reference sample from China (right).	281
5.31 & 5.32	Celadon dishes from other sites in Sarawak (left) and a piece kept by a Singaporean collector (right).	281

5.33 & 5.34	A celadon dish with ridged-melon design carved on the inner wall (left) and a celadon dish from the site of Sungai Limau Manis, Brunei Darussalam.	282
5.35 & 5.36	Celadon dishes without flattened rim from Benat Hilir.	283
5.37 & 5.38	Two reference samples from China.	283
5.39 & 5.40	Celadon jarlets from Benat Hilir (left) and Senangeh (right).	284
5.41 & 5.42	A reference sample from China (left) and a reference sample from the collection in National Taiwan Museum (right).	284
5.43 & 5.44	Celadon jarlet from Benat Hilir (left) and a reference sample from Fitzwilliam Museum (right).	285
5.45 & 5.46	Two celadon jarlets with ice cracks pattern from Senangeh (left) and a reference sample from the collection in National Taiwan Museum (right).	285
5.47 & 5.48	Celadon small cups from Benat Hilir (left) and reference samples from other sites in Sarawak (right).	286
5.49 & 5.50	Reference materials from sites in China.	286
5.51 & 5.52	A celadon bowl from Senangeh (left) and a reference sample from the Ronald W. Longsdorf's collection (right).	287
5.53 & 5.54	A celadon ewer from Senangeh (left) and reference samples from Taiwan (right).	288
5.55 & 5.56	Two melon-shaped ewers from Benat Hilir (left) and a reference sample from China (right).	289
5.57 & 5.58	A celadon bowl with banana leaves design on the interior and lotus petal with combed lines design on the exterior from Benat Hilir (left) and a reference sample discovered in China (right).	289
5.59 & 5.60	Two white ware bowls with unglazed lip from Benat Hilir.	291
5.61 & 5.62	Reference samples from kiln sites at Dehua District, China.	292

5.63 & 5.64	Intact pieces of white ware deep bowls (left) and reconstructed white ware deep bowls (right) from Benat Hilir.	293
5.65 & 5.66	A Qingbai deep bowl excavated from kiln sites at Dehua District, Fujian Province, China (left) and two white ware deep bowls found from the sites of Sungai Limau Manis in Brunei Darussalam (right).	293
5.67 & 5.68	A white ware conical bowl from Benat Hilir (left) and a reference sample from the kiln sites at Dehua District, Fujian Province, China (right).	294
5.69 & 5.70	A white ware bowl from Benat Hilir (left) and a reference sample from the kiln sites at Dehua District, Fujian Province, China (right).	294
5.71 & 5.72	A white ware covered box from Benat Hilir (left) and a reference sample displayed in the gallery of Dehua Ceramic Museum (right).	295
5.73 & 5.74	Two lids of a covered box discovered in Benat Hilir (left) and reference samples from China (right).	295
5.75 & 5.76	A covered box with light greyish colour from Benat Hilir (left) and a reference sample excavated from a site at Dehua District, Fujian Province, China (right).	295
5.77 & 5.78	A white ware three-handle jar from Senangeh (left) and a reference sample from the Philippines (right).	296
5.79 & 5.80	Qingbai ware and white ware small vases from Benat Hilir.	297
5.81 & 5.82	Reference samples from sites in Sungai Limau Manis, Brunei Darussalam (left) and from the Nanhai 1 shipwreck (right).	297
5.83 & 5.84	Reference samples discovered from Pulau Buaya wreck and kiln site in Dehua District, Fujian Province, China (left), and white ware small vases displayed in the gallery of Dehua Ceramic Museum (right).	297
5.85 & 5.86	White ware ewer from Benat Hilir (left) and a reference sample from the Philippines (right).	298

5.87 & 5.88	A white ware plate from Benat Hilir (left) and a reference sample discovered in the Philippines (right).	299
5.89 & 5.90	Three large vases from Benat Hilir (left) and reference materials from China and the Philippines (right).	300
5.91 & 5.92	Qingbai bowls with stylized scrolls from Benat Hilir provided evidence of products from the Dehua kiln in China.	300
5.93 & 5.94	Two reference samples of Qingbai bowl with stylized scrolls from the Nanhai 1 shipwreck.	301
5.95 & 5.96	The body of a Qingbai covered box from Benat Hilir (left) and reference samples from Pulau Buaya Wreck and Guangzhou Museum (right).	303
5.97 & 5.98	A broken Qingbai octagonal-shaped ewer from Benat Hilir (left) and a reference sample from the Java Sea wreck (right).	304
5.99 & 5.100	A Qingbai floral-shaped plate from Benat Hilir (left) and a reference sample from the gallery of Maritime Silk Road Museum of Guangdong (right).	305
5.101 & 5.102	Qingbai floral-shaped plates from Benat Hilir (left) and drawings of a reference sample from the Java Sea wreck (right).	305
5.103 & 5.104	A small Qingbai vase from Benat Hilir (left) and reference samples from Sungai Limau Manis, Brunei Darussalam (right).	306
5.105 & 5.106	A broken ewer decorated with crossed lines design from Benat Hilir (left) and a ewer with similar form and design found in Sarawak (right).	307
5.107 & 5.108	A square-shaped Qingbai bowl (left) and a Qingbai ewer from Benat Hilir (right).	307
5.109 & 5.110	A black-glazed storage jug from Benat Hilir (left) and a black-glazed storage jug from Senangeh (right).	310
5.111 & 5.112	Reference samples discovered from shipwrecks in South China Sea (left) and from sites at Sungai Limau Manis, Brunei Darussalam.	310

5.113 & 5.114	Storage bottles from Benat Hilir (left) and similar examples from the site of Sungai Limau Manis, Brunei Darussalam.	311
5.115 & 5.116	Storage bottles from Benat Hilir.	311
5.117 & 5.118	Storage bottles from Brunei Darussalam (left) and storage bottles from Nanhai 1 wreck and Pulau Buaya wreck (right).	311
5.119 & 5.120	Lead-glazed saucers made to lotus shape from Benat Hilir.	312
5.121 & 5.122	Lead-glazed kendis and saucers from Gedong (left) and reference sample from the Maritime Silk Road Museum of Guangdong (right).	312
5.123 & 5.124	Two reference samples from a shipwreck in the southern sea near Taishan District (台山县) of Guangdong Province (left) and reference samples from sites at Sungai Limau Manis, Brunei Darussalam (right).	313
5.125 & 5.126	Several lead-glazed kendis from the site of Benat Hilir (left) and reference samples from the site of Cizao, Jinjiang in Fujian Province, China (right).	313
5.127 & 5.128	Lead-glazed kendis (left) and lead-glazed wares painted with geometry design in black colour (right) from the sites of Sungai Limau Manis, Brunei Darussalam.	314
5.129	Two brown-yellowish glazed kendi from Benat Hilir.	314
5.130 & 5.131	A lead-glazed jarlet from Senangeh (left) and a reference sample from the Philippines (right).	315
5.132 & 5.133	Two small jarlets carved with “two dragons chasing a pearl” motif in high relief (left) and a reference sample from the Philippines (right).	316
5.134 & 5.135	Two vases with geometrical designs in black colour from Benat Hilir (left) and reference samples excavated from kiln sites in Cizao District (right).	317
5.136	Two black-glazed tea bowls from Benat Hilir.	317
5.137 & 5.138	Two storage jars from Benat Hilir (left) and reference samples found in Pingsha, Zhuhai of Guangdong Province (right).	318



5.139 & 5.140	A celadon four-handle jar from Benat Hilir (left) and reference samples from Pulau Buaya Wreck (right).	318
5.141 & 5.142	A green-yellowish celadon four-handle jar with dragon design from Benat Hilir (left) and a reference sample from Brunei Darussalam (right).	319
5.143 & 5.144	A four-handle jar excavated from Pingsha, Zhuhai of Guangdong Province (left) and reference samples from the Java Sea wreck (right).	319
5.145 & 5.146	A four-handle jar from Benat Hilir (left) and a storage jar pasted with three handles on the shoulder from Pingsha, Zhuhai, Guangdong Province (right).	319
5.147 & 5.148	Two small storage jars from Benat Hilir (left) and a reference sample from Sungai Limau Manis, Brunei Darussalam (right).	319
5.149 & 5.150	A small four-handle jar from Benat Hilir (left) and a reference sample from a private collector (right).	320
5.151 & 5.152	Two well-made black-glazed tea bowls from Benat Hilir (left) and reference sample from the sites at Sungai Limau Manis, Brunei Darussalam (right).	322
5.153 & 5.154	A kendi carved with a dragon head motif at the spout from Benat Hilir (left) and a reference sample kept in the collection of University of Malaya (right).	322
5.155 & 5.156	The kendis discovered from Benat Hilir (left) and reference samples from Pulau Tioman, Malaysia (right).	323
5.157 & 5.158	A half-glazed celadon bowl incised with simplified lotus design from Benat Hilir (left) and a reference sample from Fujian Province, China (right).	324
5.159 & 5.160	A celadon bowl with incised-floral and stippled design from Benat Hilir (left) and a reference sample from the kiln sites in Fujian Province, China (right).	325
5.161 & 5.162	A celadon bowl with the word “吉” from Benat Hilir (left) and a reference sample from Sungai Limau Manis, Brunei Darussalam (right).	326

5.163 & 5.164	Two celadon saucers from Benat Hilir.	327
5.165 & 5.166	Reference samples from the private collectors.	327
5.167 & 5.168	A Qingbai-greyish bowl from Benat Hilir (left) and a reference sample from the cargoes of Huaguangjiao 1 wreck.	328
5.169 & 5.170	Two semi-complete ewers from Benat Hilir (left) and a reference sample from the findings of Huaguangjiao 1 wreck (right).	329
5.171 & 5.172	A reference sample from the collection of Sabah Museum (left) and a reference sample from a private collector (right).	329
5.173 & 5.174	Celadon four-handle jars greyish in colour from Benat Hilir (left) and reference samples from a site in China (right).	330
5.175 & 5.176	A small vase made to a melon-shaped body with a plate-liked mouth from Benat Hilir (left) and reference samples from the Pulau Buaya wreck and China (right).	331
5.177 & 5.178	Two basins probably coated with a glaze in green-yellowish tinge from Benat Hilir.	332
5.179 & 5.180	A basin discovered from a shipwreck in South China Sea (left) and a reference sample from the site at Pulau Tioman, Malaysia (right).	332
5.181 & 5.182	A small four-handle jar with a melon-shaped body from Benat Hilir (left) and a reference sample from the shipwrecks (right).	333
5.183 & 5.184	A spittoon from Benat Hilir (left) and a reference sample kept in Ronald W. Longsdorf's collection (right).	334
5.185 & 5.186	Coarse-made kendis from the site of Benat Hilir.	334
5.187	Three coarsely made ewers from Senangeh and Gedong.	335

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# **KAJIAN SERAMIK PERDAGANGAN DARI CHINA DI SUNGAI SADONG, SARAWAK**

## **ABSTRAK**

Tesis ini membincang tentang hasil kajian seramik perdagangan dari China yang ditemui di Senangreh, Benat Hilir and Gedong di Sungai Sadong, Sarawak. Metodologi kajian yang diguna terdiri dari analisis secara morfologi dan saintifik serta kajian perbandingan untuk menjawab isu and persoalan tentang klasifikasi seramik (jenis dan warna glasier), asal-usul dan pentarikan seramik perdagangan China yang dijumpa di Sungai Sadong. Analisis morfologi yang dijalankan dalam kajian ini merangkumi klasifikasi berdasarkan warna glasier, jenis, fungsi dan dekorasi seramik. Di samping itu, analisis saintifik dijalankan untuk mengkaji kandungan bahan-bahan kimia dalam sampel seramik yang dipilih untuk perbandingan dengan hasil klasifikasi berdasarkan ciri-ciri morfologi. Hasil daripada analisis secara morfologi dan saintifik turut dibandingkan dengan seramik rujukan dari tapak-tapak di China serta tapak dan kapal karam di Asia Tenggara. Tujuan perbandingan ini adalah untuk menentukan asal-usul dan pentarikan seramik perdagangan yang dikaji dari Sungai Sadong, Sarawak. Sebanyak 6 jenis seramik dengan pelbagai warna glasier, 15 jenis seramik dengan rekabentuk yang berlainan dan 3 kategori dekorasi utama dikenalpasti dalam kajian ini. Seramik dari kilang tanur Longquan di Provinsi Zhejiang dan Dehua di Provinsi Fujian, dua pusat pengeluaran seramik utama di selatan China telah dikenalpasti dalam kajian ini manakala produk seramik dari kilang tanur Jingdezhen di Provinsi Jiangxi dan kilang tanur Cizao di Provinsi Fujian pula berjaya dikenalpasti buat kali pertama. Hasil berkenaan telah menambah kepelbagaian jenis seramik dari China yang ditemui di

Sarawak dan menghubungkan seramik di Sarawak dengan jaringan perdagangan maritime di Asia Tenggara. Berdasarkan persamaan jenis seramik, kawasan Sungai Sadong dipercayai mempunyai hubungan yang rapat dengan tapak-tapak arkeologi di Kuala Sungai Sarawak, dan juga tapak-tapak arkeologi di Sungai Limau Manis, Brunei Darussalam. Tapak-tapak arkeologi di kawasan berkenaan dipercayai wujud pada masa yang lebih kurang sama, iaitu sekitar abad ke-10 hingga ke-14 tahun masihi.

# **THE STUDY OF CHINESE TRADE CERAMICS IN SUNGAI SADONG, SARAWAK**

## **ABSTRACT**

This thesis discusses the results of the study on the Chinese trade ceramics found in Senangeh, Benat Hilir and Gedong on the Sungai Sadong, Sarawak. The methodology used in this study included morphology analysis, scientific analysis and comparative studies, in order to answer questions concerning the classification (such as types and glaze colours), origins and date of production of the ceramics. Morphology analysis done in this study consists of classification of Chinese trade ceramics according to glaze colours, types, functions, and the decorations on the ceramics. Scientific analysis, on the other hand, was carried out to examine the chemical components of selected samples in order to compare the results of classification studies made based on morphology characteristics. The results of both morphology and scientific analyses were also compared with reference materials from other sites in China, as well as sites and shipwrecks in Southeast Asia, in order to trace the provenances and dating of the Chinese trade ceramics in this study. In total, six types of glazed ceramics, 15 types of utensils and 3 major categories of decorations had been identified in this study. Most of the ceramics found in this study are the products of Longquan kiln in Zhejiang Province and Dehua kiln in Fujian Province, China. In addition, ceramic products of Jingdezhen kiln in Jiangxi Province and Cizao kiln in Fujian Province as well as the products from other kiln sites situated in Fujian Province and Guangdong Province, have also been identified in this study. The results had increased the diversity of trade ceramics in Sarawak

and also connected this part of Sarawak to the ancient maritime trade networks. This study also indicated that the ceramics from the Sungai Sadong is closely related to those found in archaeological sites at the Sarawak River Delta and also sites at Sungai Limau Manis in Brunei Darussalam. Based on the similar types of Chinese trade ceramics found at these archaeological sites, it is believed that they are all dated the 10<sup>th</sup> to 14<sup>th</sup> centuries CE.

# CHAPTER 1

## INTRODUCTION

### 1.1 INTRODUCTION

This chapter presents the issues and problems of Chinese trade ceramic research in Sarawak, objectives of present study, the research sites, scope of study and methodology used in this research. In addition, this chapter also attempts to introduce the general concept of Chinese ceramics and a general statement of Chinese trade ceramics found in Sarawak, Malaysia. Six types of Chinese ceramics are discussed in the following in order to standardise and understand the type of Chinese trade ceramics in this research.

#### 1.1.1 Definitions of Chinese Ceramics

The word “ceramic” originated from the ancient Greek word “*keramikos*”, which means clay (Liddell *et al.* 2007). It is used to refer anything made from clay (such as brick, pottery, tile, terracotta and others) and fired to become hard and durable. Ceramic vessel is an inorganic, non-metallic and solid product prepared by the action of heat and subsequent cooling. Oxford Concise Dictionary of Archaeology interprets that ceramic is “*The state that clay achieves when converted into pottery by firing to a temperature of not less than 500°C. The term ‘ceramics’ is often used to refer to assemblages of pottery.*” (Darvill 2008). This revolutionary invention is the earliest human-create technique in transforming a substance to another through a chemical process. In fact, the early stage of ceramic industry is pottery making. Pottery, as described in the Oxford Concise Dictionary of Archaeology, is “*clay that*



*has been fashioned into a desired shape and then dried to reduce its water content before being fired or baked to fix its form. At temperatures of about 400°C water begins to be lost from the molecules forming the clay and at this point the clay cannot be returned to a plastic state through re-hydration. At around 1000°C the clay molecules begin to fuse, and at higher temperatures still the minerals vitrify into a solid mass. Pottery is made in many different ways either by hand or using a potter's wheel. Because of the widespread availability of usable clay, pottery was independently invented in many parts of the world at different times.”* (Darvill 2008). Pottery is generally believed to have made its first appearance during the Neolithic Era when prehistoric people started to settle down at a place rather than the nomadic life. Owing to the far-reaching impact of pottery making, the technique was considered as one of the significant and revolutionary improvement of the Neolithic Era, equally same with the importance of the beginning of domestication of both animals and plants which began as early as 10,000 years ago (Chinese Ceramic Society 1982).

In the Chinese history of civilisation, ceramic industry shows a continuous development since the making of potteries from the early Neolithic era. The Chinese tradition recognizes two radical classes of ceramics based on the techniques used and the qualities of different products. They are low-fired ceramic – pottery (*Tao* 陶, approximately fired at a low temperature below  $1100 \pm 50^{\circ}\text{C}$ ) and the high-fired ceramic - porcelain (*Ci* 瓷, approximately fired at a high temperature at  $1200^{\circ}\text{C}$  and above) (Chinese Ceramic Society 1982, Darvill 2008). Distinctive characteristics between pottery and porcelain, first of all, quality of the clay; as the pottery is made up of potter's earth without any filtration, while the porcelain is made up of filtrated

Gao Ling clay. Secondly, porcelain must be decorated with glazes without exception; in contrast, the pottery is always without the cover of a glaze layer (only a few exceptions decorated with lead glazed). The content of iron oxide of both pottery and porcelain is divided by a standard of 3%, which mean the iron oxide inside a pottery is always more than 3% since the porcelain is below 3% (Wang 2011). Another commonly accepted principle is, pottery is the ceramic vessel with high water permeability, yet porcelain could hold the water element better. However, both of them are different but closely related.

Archaeological discoveries in mainland China indicated that the earliest evidence of the Chinese potteries is made within the early Neolithic period. The technique to make a pottery vessel is considered as one of the revolutionary improvements of early Neolithic Era to differentiate with unenlightened Palaeolithic Era (Chinese Ceramic Society 1982). Pottery is the general name of a group of various implements made up of potter's earth consisting of Iron oxide ( $\text{Fe}_2\text{O}_3$ ), Titanium oxide ( $\text{TiO}_2$ ), Calcium oxide ( $\text{CaO}$ ), Magnesium oxide ( $\text{MgO}$ ), Potassium oxide ( $\text{K}_2\text{O}$ ), Sodium oxide ( $\text{Na}_2\text{O}$ ), Manganese oxide ( $\text{MnO}$ ) and some other fluxing agents. It can be categorized according to material (such as clay pottery, slip sand pottery and others); colour (such as terracotta, painted pottery, black polished pottery, white pottery and grey pottery) and the theme of decoration (such as corded pattern, red slipped, geometric pattern, grid/basket pattern, stamped hard-pottery and others) (Wei 2008).

Pottery can be found in most of the archaeological sites around the world and it is no doubt that the ancient civilisations create their own potteries independently,

whereas porcelain is one of the greatest inventions of ancient China and spread to other regions around the world. The invention of making a porcelain vessel developed from the technique to make the white pottery using similar material (Kaolin or Gao Ling clay 高岭土), a result of the development of the pottery industry. A series of technique innovations such as maintaining high temperature in the kiln firing, filtrated materials which turned the product into a better quality, invention of glaze coating and improvement of techniques to make the white pottery brings to a better product, namely porcelain. Generally, a ceramic product with the chief material composed of Gao Ling clay matured in a kiln with the fire temperature at approximately 1200°C (the temperature might be higher or sometimes a bit lower) and covered by the glaze on its surface, is a porcelain (Lu *et al.* 1983). Previous excavation and studies of the archaeological sites in China indicated that primitive form of the porcelain with a greenish glaze probably created in the early period of Shang Dynasty (approximately 16<sup>th</sup> - 11<sup>th</sup> Century BCE). However, the Eastern Han Dynasty (25 – 220 CE) is considered as the mature period in manufacturing the porcelain. Henceforth the production of ceramics, particularly the production of porcelain reaches a new stage.

Generally, classification of porcelain is always based on the period or date of production (such as Song Dynasty or Ming Dynasty), provenance or place of origin (such as the southern region of mainland China or Guangdong province), kilns (Yue kiln or Longquan kiln) and feature of the porcelain (such as glaze colours – celadon, white ware and others; types - plate, bowl and others). As mentioned earlier, Chinese porcelain can be further classified into various categories in accordance with different kinds of typology methods. Classification of the ceramic vessels is always

based on the glaze colours as it is the immediate way to differentiate one and others, the following terms are the common types of Chinese ceramics: tri-coloured glazed wares of the Tang Dynasty (唐三彩), celadon wares (青瓷), white wares (白瓷), black-glazed wares (黑釉瓷, or Temmoku 天目瓷), Qingbai wares (青白瓷), blue-and-white wares (青花瓷), yellowish-brown glazed wares (黄褐釉瓷) and other polychrome glazed wares. Generally, tri-coloured glazed wares always represent the artistic products of the Tang Dynasty; celadon wares represent the highest development of ceramic industry in Song and Yuan Dynasties; while blue-and-white porcelain indicates the golden period of manufacturing industry of Ming and Qing Dynasties. In fact, the typical categories mentioned above only represents the most significant achievement of the ceramic industry in the corresponding periods. It is not possible to discuss all types of Chinese ceramics in this study, therefore, several major categories of Chinese ceramics discovered in the research area had been stated and discussed.

### **1.1.2 GENERAL STATEMENT OF CERAMICS**

#### **1.1.2.1 Trade Ceramic**

Trade ceramic is a kind of commodities produced to fulfil the demands of foreign markets, rise as one of the ceramic types during the Song Dynasty (Feng 1990). In short, it can be considered as a kind of ceramics purposely manufactured for maritime trade. Before the third stage of ceramics exportation, which is equally the same with the reign of Ming to Qing Dynasties, designs and the motifs decorated on trade ceramics have no difference with the products for the domestic market (such as celadon). By the Song to Yuan Dynasties, celadon is the main ceramic type for trade,

which also monopolized the domestic market. At the same time, white ware, Qingbai ware and black-glazed ware were not rare in the maritime trade. However, the type of ceramic in the maritime trade was eventually replaced by the blue-and-white porcelain during the middle period of the Ming Dynasty. Although trade ceramics of Chinese motif are similar to their counterparts manufactured for the domestic market, the time of production or place of origin of the products for trade might be different from those confined to domestic market. This is because the making of some ceramics with obsolete designs may have been continued for exportation purpose, after they had gone out of fashion for ages in mainland China.

Archaeological discoveries and historical records suggested that motifs from foreign countries were added to the decorations on trade ceramics during the middle period of the Ming Dynasty (Lin 2011, Gan 2008). During the reign of Emperor *Jia Jing* (嘉靖, 1522 – 1566 CE, the reign of *Ming Shi Zong* 明世宗朱厚熜, the 12<sup>th</sup> emperor of Ming Dynasty), ceramic products, particularly the blue-and-white porcelain, with typical designs or motifs from the foreign countries were purposely created to fulfil the needs of the foreign market. For instance, enamelled-wares decorated with European motifs such as armorial-porcelain for the European nobles, and blue-and-white porcelain decorated with Islamic motifs or Arabic inscriptions for the Middle East (Feng 1990). This kind of Chinese ceramics with foreign-motifs were not found before the middle period of Ming Dynasty, except for the large dishes first made in Zhejiang province and later at Jingdezhen kiln in Jiangxi province which is rarely seen in the Chinese tradition (Lin 2011). Chinese ceramics with foreign motif are commonly known as Chinese export porcelain, and it is considered as one of the ceramic types for trade under the category of trade ceramics.

However, Chinese ceramic with foreign designs are not included in this research as the ceramics discovered from the selected archaeological sites in the research area are confined to the products manufactured before Ming Dynasty.

#### **1.1.2.2 Tri-coloured glazed wares (三彩瓷)**

Ceramics of this type is best known as the typical Chinese art of the Tang Dynasty commonly unearthed from the tomb of people with high social status. The unique ceramic type is made up of filtrate white clay and decorated with glaze consisting of copper (Cu), iron (Fe), cobalt (Co), manganese (Mn) and other specific elements. The clay body is fired at a high temperature approximately 1100 °C before the glazing process. After that, lead (Pb) will be added into the glaze fluid as a combustion improver and fired at a lower temperature ranging from 800 to 900 °C. Different metal elements inside the glaze will turn into various types of colours (for example cupric oxide will turn into green, iron or ferric oxide will turn into yellowish or brown) during the firing process (Wei 2008). The colourful vessels were named “tri-coloured glazed ware” because yellow, white and green are the most common colours that appeared on the surface. However, there are actually more than three colours, but “tri-coloured glazed ware” had become the common name for this type of Tang’s ceramic. This colourful ceramic product is considered as one of the significant trade items of the Tang Dynasty. Large quantities of tri-coloured glazed ware had been discovered in Japan, Egypt and elsewhere (Valenstein 1988). In fact, archaeological evidences show that the sites in the research area lacked artefacts dated to 6<sup>th</sup> – 9<sup>th</sup> century CE, except for the discovery of Chinese coins of the Tang Dynasty - “*Kai Yuan Tong Bao*” (开元通宝) in Gedong (Chin 1969).

### **1.1.2.3 Celadon (青瓷)**

The word “celadon”, is a term originally given by the Western scholars to describe the green-glazed Longquan (龙泉窑) wares from southern China; however, it is now commonly used to name ceramics with green colour glaze. The formation of glaze colours usually depends on the content of iron oxide (more or less) and the completeness of reducing atmosphere in the kiln firing. The terms for both celadon and green-glazed ware in Mandarin is “青瓷”, which means porcelain coated with a glaze green in colour. Therefore, celadon class recognized in this study refers to all the ceramics covered by a glaze which is basically green in colour. Celadon ware had played a significant role in the development of the ceramic industry because advanced techniques used to make the celadon wares (such as the application of reducing atmosphere during the firing process) contributed to the inventions of other ceramic types. The earliest evidence of celadon ware probably emerged within the Shang to Zhou Dynasties based on archaeological discoveries in China (The Chinese Ceramic Society 1982, Wei 2008). However, it is considered as the “proto-type” or primitive form of celadon ware as the technique of glazing is immature compared to the ceramic products of the later periods. The making of celadon ware became well developed during the Eastern Han Dynasty as indicated by large quantities of celadon wares unearthed from tombs and sites dated to this span of time.

Henceforth celadon started to hold the majority status in the ceramic industry of ancient China until the Tang Dynasty, following the emergence and development of white ware that challenged the monopoly of the celadon ware. Because kiln sites that produced white ware are mostly located at the northern part of China, the production of ceramics was summarized as “south green and north white” period (南

青北白) during the Tang Dynasty. The output of celadon wares had dropped and the production centres confined to the southern part of China. In fact, the development of celadon ware in southern China became well developed during the Song Dynasty, which is the most prosperous period of the ceramic industry in ancient China, especially the achievement in making fine celadon wares for the royal court and the exportation of ceramic products to foreign markets. Ceramic kilns during this period were able to produce high quality celadon products, in particular the Yue kiln (越窑), Longquan kiln (龙泉窑), Guan kiln (官窑), Jun kiln (钧窑), Ru kiln (汝窑) and Yaozhou kiln (耀州窑) (Wei 2008, Li 2011). Amongst the kiln sites mentioned above, Longquan celadon is the most popular in the ceramic trade and is well known for its lustrous jade-like quality in the foreign markets.

The manufacture of trade ceramic had become a nationwide industry in this period and continued for several hundred years until the present day. Although the potters continued to produce celadon wares after the fall of the Song Dynasty, the qualities of celadon wares began a decline and were eventually replaced by blue-and-white porcelain which became popular during the middle period of the Yuan Dynasty. Celadon ware was finally replaced by the blue-and-white porcelain during the Ming and Qing Dynasties, but the making of celadon continued in a smaller scale until the present day. There are also some kilns which kept on imitating the Song's celadon wares to meet the needs of foreign markets. In some cases, the emperors of the Qing Dynasty prefer to imitate celadon vessels from the past including the Song's. Celadon ware is the most common ceramic type found in the research area, which refer to a group of ceramics with a variety of green colours ranging from pure



green to non-uniform green colours (mixed with greyish and yellowish at the same time).

#### **1.1.2.4 White ware (白瓷)**

White ware is a type of Chinese porcelain made up of white clay and coated with a transparent glaze. Based on the Chinese documents, white ware is often referred as “white-coloured” porcelain. In fact, the glaze covered on the wares is transparent and the white colour came from filtrated clay or the white slip which covered on the entire surface with a very low content of iron oxide (The Chinese Ceramic Society 1982). It appears similar to the celadon wares, the white ware family comprising a variety of white colours such as pure white, white-yellowish, white-greyish, milky white and ivory white. Therefore, it is sometimes difficult to distinguish a ceramic vessel as white ware or Qingbai ware without the assistance of scientific tests, particularly when the ceramics were made with low quality. The earliest evidence of white ware discovered in China was found during the Eastern Han Dynasty, which they were also considered the “proto-type” of the white ware. The production of well developed white ware occurred during the Southern and Northern Dynasties (魏晋南北朝) based on the evidences unearthed from a tomb dated to the Northern Qi Dynasty (北齐) (Wei 2008). However, the creation of good quality white ware happened at the Xing kiln (邢窑) during the Tang Dynasty, and it rapidly challenges the monopoly of the celadon ware in the ceramic industry. Other kiln sites that were able to produce the white wares are the Quyang (曲阳窑) and Gongxian kilns (巩县窑). This type of ceramic grew as one of the major products in the ceramic industry known as the so-called “south green and north white” period during the Tang Dynasty (Wei 2008). In this period, white wares are characterized as the ceramics of

the “northern type” because the production centres of white wares are mostly situated in the northern part of China.

Until the Song Dynasty, Ding kiln (定窑) rapidly developed as the production centre of the white wares following the tradition of Quyang kiln (曲阳窑), a kiln in the Tang Dynasty which is also famous for its white ware products (Wei 2008). However, the white wares manufactured at the Ding kiln were mostly produced for the domestic market rather than for maritime trade as the kilns are located in northern part of China. Thus, the products of Ding kiln are rare among the findings from archaeological sites out of China and from the shipwrecks, compared to the products of other kiln sites in southern China, although the white wares of Ding kiln were also involved in the ceramic trade. In fact, white wares exported to the foreign markets were mostly manufactured by the kilns in southern China such as Dehua kiln following the tradition of Ding kiln. Because of the poor materials used by the kiln sites in southern China, potters of the kiln sites in southern China commonly covered a white slip onto the exterior to improve the whiteness of their products. This weakness had later become one of the common features found on the white wares from southern China.

Dehua kiln (德化窑) in Fujian Province became the production centre of white wares after the fall of the Xing kiln and Ding kiln. Following the tradition of Ding kiln, the Dehua kiln also exported large quantities of the chalky white wares to the foreign markets since the Southern Song Dynasty. High quality white wares of the Dehua kiln are known as “*Blanc De Chine*” in the later periods, after the potters improved the quality of materials and glazes. Dehua kiln was greatly involved in the

ceramic trade due to its strategic location which lies close to the trading ports in Fujian Province. As a result, large quantities of ceramic wares from Dehua kiln had been discovered from sites around Southeast Asia and elsewhere. It is therefore not surprising that most of the white wares identified in this study are the products of Dehua kiln.

#### **1.1.2.5 Qingbai ware (青白瓷)**

Qingbai ware is also known as Yingqing (Ying Ch'ing) ware in some of the ceramic studies, which refer to a type of ceramic wares coated with a semi-transparent glaze in icy bluish-white (Wei 2008). These two terms are referred to as the same ceramic type that was used in different times. Qingbai is commonly seen on documents written during the Song to Yuan period, while Yingqing (means shadow green) which better describes shadow effects of the fine porcelain compared to the direct description of Qingbai term, were created during Qing Dynasty (Li 2011). “*Qing*” means green, while “*Bai*” means white in Mandarin; the Chinese potters name the ceramic wares with a colour in between green and white as “Qingbai” ware. Therefore, the porcelains covered by a glaze in neither green nor white, but somewhere in between, are considered as Qingbai ware.

The production of Qingbai ware started at the Jingdezhen kiln, where the ceramic type was created, during the early period of Northern Song Dynasty (Wei 2008, Li 2011). In addition to Jingdezhen kiln, Qingbai ware was produced at many other kilns in south China such as Baishe kiln (白舍窑) in Nanfeng District of Jiangxi Province, Dehua kiln (德化窑) in Fujian Province, as well as Chao'an kiln (潮安窑) in Guangdong Province and Fanchang kiln (繁昌窑) in Anhui Province (Wei 2008, Li

2011). In fact, not all the kiln sites in southern China were able to produce genuine type of Qingbai ware similar to the products of Jingdezhen kiln, except for the Baishe kiln in Jiangxi Province, Fanchang kiln in Anhui Province and some other kilns. Some of the imitations tend to be greyish compared to the genuine type of good quality Qingbai wares. Therefore, it is sometimes difficult to distinguish a ceramic product as Qingbai-greyish ware or white ware due to the limitation of visual inspection. Based on the archaeological evidences from China and the findings from the shipwrecks, Qingbai wares were exported in large quantities to the foreign markets during the Song and Yuan Dynasties (Li 2008). As the cases in this study, genuine type of good quality Qingbai wares were rarely seen, while a large number of the Qingbai wares found from the research area tend to be greyish in colour.

#### **1.1.2.6 Black-glazed ware (黑釉瓷) or Temmoku (天目瓷)**

“Temmoku” is a Japanese term which refers to ceramics covered by a kind of opaque glaze in black colour, in particular the tea bowl originated from the kiln sites in Fujian Province. It is first used to describe the black glazed tea bowls of Jian kiln (建窑) brought back to Japan by the monks who studied in the Buddhist temples at Mount Tianmu in Zhejiang Province, China. The term “Temmoku” is also extended to include ceramic products covered by opaque glaze in black colour; however, the use of “Temmoku” is not as wide as the term “celadon”, which refers to all the ceramics which are basically green in colour. Therefore, ceramics coated with an opaque glaze in black colour are known as black-glazed ware in this research. Similar to other ceramic types mentioned above, this kind of ceramic wares are also fired at a high temperature (approximately 1200 °C) in a kiln, and it has a very high

content of iron oxide (approximately 8 - 10 %) in the glaze fluid which turned the glaze into black or dark brown. The black colour of the glaze is more obvious and pure if the thickness of the glaze increases. Generally, materials of black colour glaze can be classified into lime glaze and alkaline-calcareous glaze. The black glazed wares produced during the Eastern Han Dynasty and Eastern Jin Dynasty are made using lime glaze, while black glazed wares of the Tang Dynasty and later periods are made using alkaline-calcareous glaze (Wei 2008).

Like the emergence of celadon wares, archaeological evidences discovered in China indicated that the production of black-glazed wares in substantial quantities started during late Eastern Han Dynasty, but the quality of black-glazed wares at that time was thought to be rough and coarse (The Chinese Ceramic Society 1982). Deqing kiln (德清窑) in Zhejiang Province is the kiln to succeed in manufacturing good quality black-glazed wares, during the Eastern Jin Dynasty (The Chinese Ceramic Society 1982:144). Black-glazed ceramics have become popular during the Tang Dynasty and it is considered as one of the common ceramic types beside celadon ware and white ware. In spite of this, the black-glazed ware is also considered as a secondary product to those kilns known for producing white wares; for example, black-glazed wares of Ding kiln are known as “Hei Ding” (means black-glazed ware of the Ding kiln).

Only in the Song Dynasty, developments of black-glazed wares reached its peak when high quality black-glazed wares with interesting decorations on the glaze layer such as “hare’s fur” (兔毫釉), “oil spot” (油滴斑), “hawk’s bill” (玳瑁斑) and “partridge-feather” (鹇斑) effects were created. Black-glazed wares with “hare’s

fur” and “oil spot” effects are typical products of Jian kiln (建窑, also known as Jian'an 建安窑 or Jianyang kiln 建阳窑) in Fujian Province; while black-glazed wares with “hawkbill” effect are produced in Jizhou kiln (吉州窑) of Jiangxi Province (Li 2011). Black-glazed wares decorated with “partridge-feather” pattern can be found from the products of both kilns. However, not all the black-glazed wares produced for the ceramic trade were made in good quality, a large numbers of half-glazed ceramics in black colour had also been found from the kiln sites in Fujian Province, from the archaeological sites out of China and also from the findings of the shipwrecks in South China Sea (Chen *et al.* 1982, Xu *et al.* 1991, Karim 2004). In this study, only a few good quality black-glazed ceramics were determined, while the remaining ceramics found to be black-glazed are rough and coarse.

#### **1.1.2.7 Blue-and-white porcelain (青花瓷)**

The name of this type of ceramic was derived from the decorations in blue pigment painted on the white clay and covered by a transparent glaze layer. Blue-and-white porcelain is a type of ceramics made up of good quality Gao Lin clay and painted or stamped with under-glaze decoration using a pigment containing cobalt (oxide) blue. In ceramic study, it is known as a kind of “under-glaze” porcelain as the decorations are painted “under” the glaze coating. In the making of “under-glaze porcelain”, the most common colours are black (iron), red (copper) and blue (cobalt). Because the colour originated from cobalt oxide that is sharper and stable among the colours from other materials, cobalt oxide is thus the most frequently used material as it is stable in the under-glaze decoration. Genuine type of blue-and-white porcelain consist of several common characteristics which included controlling the formula of blue pigment using cobalt, the mature of painting “under” the glaze, the mastered of

drawing skills on porcelain clay and the making of fine porcelain in pure white (Valenstein 1989).

Primitive form of blue-and-white porcelain occurred in the Tang Dynasty in accordance with the evidences discovered in Yangzhou (扬州), China and the finds of Belitung Shipwreck (Wei 2008, Gu 2009). Unlike other types of ceramic wares, the occurrence of blue-and-white porcelain in large scale is probably dated not earlier than the Southern Song Dynasty and the production of this ceramic type went into maturity at Jingdezhen kiln during the Yuan Dynasty (Feng 1994, Li 2011). Blue-and-white porcelain rapidly developed in the middle to late Yuan Dynasty, and caused to the fall of the celadon wares which monopolized the ceramic trade for several hundred years. According to the evidences discovered in Iran, Turkey, Philippines and elsewhere, blue-and-white porcelain was broadly involved in the ceramic trade since Yuan Dynasty (Feng 1994). In the early stage of production, blue-and-white porcelain manufactured by Jingdezhen kiln played a role as the trade item for exportation to meet the demands of foreign markets, rather than for the need of the domestic market (Li 2011). Gradually, it became the main commodities of maritime trade since the Ming Dynasty and continued until the present day.

The study of blue-and-white porcelain is quite different from other ceramic types usually classified and identified according to the production centres (such as Longquan celadon). The study of blue-and-white porcelain, especially those produced in the Ming and Qing Dynasties, is mostly classified according to the date of production or the reign of the emperor such as blue-and-white porcelain of the *Xuan De* period (宣德时期) or *Wan Li* period (万历时期). Direct involvements of Ming

Court in the ceramic industry give rise to the monopoly of blue-and-white porcelain among the products of “official kilns” (官窑) and most of the “folk kilns” (民窑). Therefore, classification according to the place of origin is not suitable for the production of ceramic wares since the Ming Dynasty. Nevertheless, blue-and-white porcelain is not included in this research as blue-and-white porcelains are not seen among the findings from the selected archaeological sites.

## **1.2 STATEMENT OF PROBLEMS**

One of the most difficult problems on Chinese trade ceramic in Sarawak is the dating and tracing the origin (kiln sites or place of origin) of the Chinese trade ceramics. In particular, many of their provenances are unknown and are dependent on archaeological fieldworks in mainland China. Although sites with ceramics discoveries were reported and recorded, the sequence of Chinese trade ceramics in the research area still remains unknown. In Sarawak, previous studies of Chinese trade ceramics in Sungai Sadong are mostly based on excavations carried out from 1960s to 1980s. In fact, several archaeological sites associated with Chinese trade ceramics, discovered and excavated after 1980s, have yet to be studied. For instance, the archaeological site of Benat Hilir excavated in 2002 and the findings of Senangeh discovered in 1996. There is thus a gap in the study of Chinese trade ceramics, especially after many local museum researchers studying ceramics have retired. In addition, previous researches in Sarawak were mostly limited to morphological analysis and no scientific analyses were carried out on the Chinese trade ceramics discovered in Sarawak. Published articles regarding the archaeological sites in the



research area are mostly site reports of the findings and research papers on Chinese trade ceramics from Sarawak are rare.

### **1.2.1 Classification of the trade ceramics**

In the ceramic study, classification study is one of the basic components after the identification of ceramics. Ceramics can be classified according to commonly accepted concepts based on type or morphology appearance. The classification study of Chinese trade ceramics in Sarawak was first initiated by Carla Zainie in association with Tom Harrisson, Barbara Harrisson, Eine Moore and others (Zainie & Harrisson 1967). At that time, archaeological data from China were limited; Zainie and Harrisson tentatively classified the Chinese trade ceramics according to glaze colours and material (texture). They tentatively established a classification system comprising ten major classes, including white ware (include Qingbai ware and “Marco Polo ware”), Yue type, celadon, Temmoku, green-glazed ware, T’zu Chou ware, coarse stoneware, Siamese ware, blue-and-white ware and polychromes (Zainie & Harrisson 1967, Chin 1977, 1988). This system was intelligible at that time, but it was not related to the classification in China and moreover, this system is not according to a single criterion. For instance, white wares were classified based on the glaze colour while the coarse stonewares were distinguished based on texture. This type of classification system is not firm and requires further extensive revision. For instance, Qingbai ware which previously included in the class of white wares, is often classified in a single category by most researchers today. Hence, it is necessary to reclassify Zainie and Harrisson’s system by separating the Qingbai wares from the white wares.

Chin (1969), on the other hand, classified the Chinese trade ceramics excavated from the site in Gedong into six major classes, namely the white wares; celadon (including Yue type); brown-glazed wares; green-glazed wares; coarse stone-wares and earthen-wares, following the classification of Zainie and Harrison. His study of the materials from Gedong is the only classification analysis available regarding the sites in the research area.

It is therefore necessary to review the previous classification of the Chinese trade ceramics from Gedong and even the classification of Chinese trade ceramics in Sarawak, and to include the materials from newly excavated sites in the classification study. This is because in the past decades, extensive excavations on the kiln sites have been conducted in mainland China, and issues and problems of certain classification study have been resolved. Apparently, a more effective and acceptable classification system is needed to reclassify the Chinese trade ceramics in Sarawak.

### **1.2.2 The origin of trade ceramics**

The ceramic collection of the Sarawak Museum Department has trade ceramics from ancient China, Japan, Sawankhalok or Siam (ancient Thailand), Annam (part of present day Vietnam) and Europe, all found in Sarawak. The majority of these trade ceramics, especially those exported to this area in the early period, originated from China, particularly from southern China (Chin 1980). Following the Chinese trade ceramics, Southeast Asian ceramics such as Vietnamese monochrome wares and Siamese Sawankhalok celadon were also found in a lesser quantity in Sarawak. Sawankhalok wares were excavated from the cave sites at Niah, Bukit Sandong, Nanga Kalaka and Tebing Tinggi (Chin 1977, 1988). Apart from the archaeological

findings, some findings of Sawankhalok wares were reported by a private company during construction works in Similajau, Bintulu (Harrison 1950). In fact, evidences of Sawankhalok ware (most of those collected by the Sarawak Museum Department) in Sarawak came from the heirlooms handed down from generation to generation by the indigenous people, particularly the Kelabit people in Sarawak. There was only a small number of Vietnamese ceramics excavated from Bukit Sandong, Tebing Tinggi and Muroh (Chin 1975, 1977). Japanese and European trade ceramics discovered in Sarawak are the minority and were probably exported to this part of Borneo during the 17<sup>th</sup> or 18<sup>th</sup> centuries CE (Chin 1988). However, the sources of Japanese and European ceramics were not mentioned in the previous research.

Zainie and Harrison (1967) classified the sherds with decoration in black, brown or white slip under the coating of plain, or green glaze as products of the Cizhou kiln (磁州窑, known as Tz'u Chou ware in their article) in their classification system. Only a few examples of the forms of plate, vase and ewer were sorted into this class. Other than their materials, another piece of evidence of trade ceramic from the Cizhou kiln is a wine jar illustrated in Chin's (1988:140) book and it is now displayed in the gallery on the second floor of the Dewan Tun Abdul Razak exhibition hall of the Sarawak Museum Department, Kuching.

Apart from products of Cizhou kiln mentioned above, the class named celadon classified by Zainie and Harrison was identified as "*the Song Dynasty products of kilns in the Longquan area of Zhejiang province*" (Zainie & Harrison 1967). Celadon of Longquan kiln was commonly mentioned in the previous studies of Chinese trade ceramics in Sarawak. This opinion is acceptable as celadon studied

in this research also suggested that the ceramics in basically green colour mostly can be traced back to Longquan kiln.

Moore (1968) identified and illustrated the Chinese trade Ceramics originated from the kiln sites at Xicun (mentioned as Si Chun in Moore's article) in the Guangdong Province. She divided the ceramic products of Xicun kiln discovered in Sarawak into four major classes: (1) white (including Qingbai ware); (2) iron slip painted; (3) Yue type and (4) black-glazed ware. This is the first and only systematic research on the ceramics originated from Xicun kiln found in Sarawak.

Besides, some popular types of Chinese trade ceramic can also be found in Sarawak such as Chinese trade ceramic of Yue type with a high frequency and Chinese trade ceramic of Ding type (also mentioned as Ting type). Zainie and Harrisson (1967) considered Yue type as one of ten major classes in their classification system, while Chinese trade ceramic of the Ding type was classified in a sub-class under the class of white ware. Although these two types of Chinese trade ceramic were classified according to their place of origin, it cannot simply conclude that the ceramics from these kilns were found in Sarawak. This is because these popular types were widespread and many ceramic kilns in other regions imitated these popular products and exported them to the foreign markets.

Chinese trade ceramics manufactured in Dehua kiln are rarely mentioned in previous studies of ceramics from sites in Sarawak. Only several examples of the Dehua white wares were illustrated in Chin (1988:38, 39). Moreover, ceramic

products which originated from the kiln sites at Jingdezhen region were not highlighted in the previous studies on trade ceramics in Sarawak.

### **1.2.3 The dating of trade ceramics**

The Sarawak Museum ceramic collection has almost every common types of Chinese trade ceramic from different periods such as celadon wares of the Song Dynasty and blue-and-white porcelain of the Ming Dynasty. According to Chin (1981), the trade ceramics excavated from 1948 to 1967, particularly from sites in the Sarawak River Delta and Gedong, are all dated from the Song and Yuan Dynasties (as classified by Feng Xian Ming in 1981). It can be generally summarized that the majority of Chinese trade ceramics found in Sarawak are celadons dated from the Song and Yuan Dynasty (10<sup>th</sup> – 14<sup>th</sup> centuries CE), and the blue-and-white porcelain of the Ming Dynasty (1368 – 1644 CE) (Han 1960, Chin 1988). In fact, the earliest evidence of Chinese trade ceramics in Sarawak were dated to the Tang Dynasty (Han 1960, Cheng 1969, Chin 1977). From the information mentioned above, it is noticed that the results of dating were generally given to a group of trade ceramic with a simple conclusion. Illustration of the evidences or reference materials used to determine the time when the ceramics were produced was rarely mentioned. In fact, the dating of Chinese trade ceramics of previous research relied heavily on comparative studies with ceramic research in China and no scientific analysis were applied to study and date the Chinese trade ceramics.

Detailed information and dating of certain types of ceramic vessels in Sarawak can be found in Chin's (1988) book. However, in the last decades, numerous excavations and researches on the dating of ceramics done in China have

provided more definite dating which can now be applied to the Chinese trade ceramics found in the research area. Moreover, the materials from Benat Hilir and Senangeh have yet to be studied and thus, no dates are available for the Chinese trade ceramics from these two sites.

### **1.3 Objectives of Present Study**

The present study focuses on Chinese trade ceramics unearthed from three selected archaeological sites in Sungai Sadong - Gedong, Benat Hilir and Senangeh. These sites were chosen because their findings are similar and there are sufficient quantities of ceramic vessels in complete forms. Archaeological excavation in Gedong was done in the 1960s and 1970s; archaeological excavation in Benat Hilir was carried out in the 1970s and 2000s (Nyandoh 1971, personal communication, Ipoi Datan, 21<sup>st</sup> April 2011); while the findings from Senangeh were discovered in 1996 (Norlailawati 1996). The discoveries from these three selected sites consist of thousand complete and semi complete ceramic pieces. A progress report concerning the discoveries from Gedong was published in the 1960s, but, the finds from Benat Hilir and Senangeh have not yet been studied and no reports have ever been published. Chinese trade ceramics from Benat Hilir are the findings of archaeological excavation done by the Sarawak Museum Department in 2002, while Senangeh is a small site discovered by local villagers in 1996 while they were digging a well behind their long house. Sufficient quantities of complete ceramic vessels from these selected sites have enabled study of Chinese trade ceramics in this area to be carried out. This study therefore hopes to achieve the following main objectives:

- i. To determine and classify the types of Chinese trade ceramics found in the Sadong area according to glaze colours, shapes and decorations.
- ii. To compare the Sadong Chinese trade ceramics with their counterparts discovered from the kiln sites in China, as well as other archaeological sites in Southeast Asia and the ceramics from shipwrecks in South China Sea.
- iii. To trace the provenance and the date of production of Sadong Chinese trade ceramics.

## **1.4 RESEARCH AREA AND SCOPE**

### **1.4.1 Overview of the research area**

Borneo Island is the third largest island in the world and the largest island in the Malay Archipelago and is geographically situated in the centre of the Southeast Asia region. Based on archaeological discoveries and historical documents, the south-western region of Borneo was under the influence, or perhaps it was the territory of the Srivijaya Kingdom (flourished in the 7<sup>th</sup> – 13<sup>th</sup> centuries CE) during the pre-Islamic era of Southeast Asia (Manguin 1996). Therefore, the coastal regions of Borneo Island, including the present research area, were involved in maritime trade between ancient China and India and the Middle East (Christie 1985). The research area is a significant drainage basin of Sungai Sadong (means Sadong River in local language) located in the southern part of Sarawak, Malaysia, equally same to the western part of Borneo Island. Sungai Sadong is a river as big as the Sarawak River, measuring approximately 4.8 km wide and approximately 82.1 km long from Kampung Gumpey in Serian District. According to oral history, Sungai Sadong is